

The Use of Feedback in Written Reports and Portfolio: An Assessment for Learning Strategy¹

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(Received July 27, 2010 Revised August 3, 2010 Accepted September 24, 2010)

This paper pretends to study the potentialities of feedback, particularly in the development of a written report in two phases and in portfolio; and the main difficulties that teachers has to face concerning this assessment practice. Through a meta-analysis concerning different studies, it is possible to say that oral or written feedback, intentionally provided to students of several ages, may enable them to develop their self-assessment capacity and to get close of the expected product. However, the type of student and his or her perceptions may influence the effectiveness of feedback. Even for experience teachers, this practice maintains complex.

Keywords: Assessment for learning; feedback; written reports; portfolio

MESC Classification: D60

MSC2010 Classification: 97Q70

INTRODUCTION

Actually, school's ultimate goal is to help all students to learn by *learning* (Delors *et al.*, 1996). This new approach to learning leads to a new culture of assessment (Dierick &

¹ This paper will be presented at the International Session of the 45th National Meeting on Mathematics Education at Dongguk University - Gyeongju Campus, Gyeongju, Korea; October 8–10, 2010.

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Dochy, 2001). However, the dominant assessment practices are still widely based on judgement of the status of the student and the grades are still the key elements (Black & Wiliam, 1998; Torrance & Pryor, 2001). According to this situation, as it is ongoing in other countries of Europe (Black *et al.*, 2003), we are developing in Portugal a project, Project AREA², the main objective of which is to understand what assessment practices can become a real learning tool, in particular, the role of feedback and its contribution to learning. In this paper we focus on the following questions:

- (i) what are the main potentialities of feedback in assessment practices, particularly in the development of a written report in two phases and in portfolio; and
- (ii) what are the main difficulties that teachers has to face concerning feedback.

ASSESSMENT FOR LEARNING

Assessment goes through gathering evidences, followed by its interpretation and finally in an action based on the hypothesis reached (Wiliam & Black, 1996). However, this type of assessment will only be truly a formative assessment if there are implications to the learning. Improving the assessment content is not enough to ensure that there will be an assessment for learning purposes (Shepard, 2000). Some particular practices may contribute to this learning process, such as, feedback and a certain way to use alternative assessment instrument.

A key practice to assessment for learning is feedback. Feedback is perceived as the information, oral or written, that shows how apart is the “performed” from the “expected” in order to minimize that difference (Sadler, 1989). To considerer this difference is not entirely new (Bellanger, 1988; 1990); however, actually the error is seen as something inherent to the act of acknowledging itself. The recognition of the error is, by itself, a learning process (Meirieu, 1988). But being able to overcome an error demands a process of meta-knowledge, which can also be considered as a learning strategy (Santos, 2002). Not every assessment discourse guarantees a monitoring action. There are even some authors that distinguish two types of feedback: the assessment feedback and the descriptive one (Tunstall & Gipps, 1996; Gipps, 1999). To be effective, the feedback should fit in the latter sub-type. Also, it is the quality and not just the quantity of feedback provided that deserves our attention (Sadler, 1998).

Hattie & Timperley (2007) also distinguish four levels of incidence on the feedback’s focus: the student, the task, the process and the self-regulation. In the first level, the feedback is personal, as it is directed to the self and often unrelated to the student’s

² Project funded by FCT n° PTDC/CED/64970/2006

performance in the task. In the second level, the feedback refers to a task or product, indicating if the work is being carried out properly and if the answers are correct or not. In the third level, the feedback focuses on the process used to develop a product or complete a certain task. This type of feedback focuses on the information process or on the learning processes necessary to understand or complete the task. The second and third levels keep on the same line taken by Wiliam (2007) which points out that feedback should focus on the task, particularly in what needs to be improved and provides guidelines for the student to proceed. Finally, in the fourth level, the feedback is concerned about the students' ability to self-assess their work and to engage deeper in accomplishing the tasks. This kind of feedback can have important implications on the students' self-regulation and self-esteem abilities (Hattie & Timperley, 2007).

It must also be noted that feedback should avoid including the error's identification and correction but rather seek to question and point out clues for future actions (Santos, 2002) so as to enable the students themselves to validate and correct the reasoning processes and to reach the correct answers (Santos, 2008). If it is so, the learning processes will tend to be more longstanding (Jorro, 2000). Furthermore, to be useful, the feedback should be given continuously. However, there are other characteristics that may influence its effectiveness such as the students' self conceptions and school performance (Santos & Pinto, 2009).

Still with regard to the feedback's effectiveness, it should focus on situations under development that haven't been subject to any kind of rating yet (Black & Wiliam, 1998). As to the work already finished, it doesn't make sense any kind of reformulation. Similarly, a continuous use of feedback helps to promote an attitude of reflection and self-assessment in the students without including any value judgments (Black *et al.*, 2003; Wiliam, 2007). Thus, there are certain assessment tools that, by their characteristics, may be particularly suitable to provide feedback. Such is the case of the two phases written reports on the performance of certain tasks and of the portfolios.

As an assessment tool, the written reports give students a privileged opportunity to describe what was done in a particular task, as well as to explain and justify their decision making. This is, therefore, what happens with Mathematics – it's a privileged and favourable context to develop mathematical reasoning and communication (NCTM, 2000). It's suitable for individual and group work; it may even be considered it has one collective part and one individual part, the latter being reserved for self-assessment. The fact that it may be developed in two phases potentiates the first version of the teacher's feedback.

Since portfolio has many possible understandings we define it, in this text, as a careful selection of papers written by students and accompanied by their reflections. The portfolio must stand out as a way to make students develop their reflection abilities on how and what they have just done, as well as to give them greater autonomy in decision making

(Clarke, 1996; Wiliam, 2007). In other words, we are talking about a reflexive portfolio (Tillema & Smith, 2000).

Bearing in mind what our portfolio understanding, its main characteristics are: flexibility, continuity, wholeness and negotiation. Flexibility because it can be applied to different areas of knowledge and levels of schooling; continuity because it covers an extended period of time that allows measuring the performer's evolution; wholeness for it covers several dimensions of the learning process and negotiation because it requires a discussion process between the one that holds the portfolio and the one who requested it.

Thus, the portfolio is a privileged context to develop the individual's meta-cognition ability (Hadji, 1997) appealing to the students' reflective thought, teamwork, commitment, responsibility and affection (Forgette-Giroux & Simon, 1997). In other words, the portfolio is an instrument that promotes learning through a dialogue between the individual, his work and his given meaning. This kind of learning can be developed through self-assessment (Wade & Yarbrough, 1996), external feedback, reflection on what and how was learnt as well as the identification of the strong and weak points in need of development (Tillema, 1998).

METHODOLOGY

This study is based on six research studies. Four of these studies were about feedback given to written reports in a mathematics classroom. The studies were carried out over a three year period in Portugal (from the academic year of 2005/2006 to 2007/2008). These research studies were carried out under the scope of project AREA and were developed by two teachers, Sónia Dias and Sílvia Semana, that teach in two different school in different areas of Portugal. One of the teachers carried out one research study per year (a total of three) and the other just one on the final year. The participants of the studies were classes of middle school level with students aged between 12 and 14 years old.

All of the research studies carried out an interpretative research methodology and used a case study design. The selection of the participant students aimed to gather students with different levels of school achievement in mathematics. The data was gathered through classroom observation, students' interviews (both with audio recording and its total transcription) and analyses of the documents produced by the students. All of the students' productions included two versions. The first version, not yet graded, had received some written feedback by the teacher. The feedback provided always aimed to be focused on the task and not on the students' specific trends (Black & Wiliam, 1998) and to be mainly of a descriptive nature (Gipps, 1999).

The other two studies were about the use of portfolio in kindergarten (children of five

years old), developed in the some period by Teresa Bondoso. These studies followed an action research methodology. The development of the portfolio is a work negotiated between the teacher and the children with the following challenge:

Each one freely chooses and examines three assignments, orders them according to its importance and talks about the reasons for their decision making. (Bondoso & Santos, 2009)

The data was gathered through classroom observation (audio recorded) and documents produced by the students.

For the purpose of the present research, the data analysis considered the following categories, that were constructed a posteriori, although shaped by the theoretical framework: *To help the student respect the agreement; to help the student think about his/her own productions; and to help the student plan and develop his/her work project.*

RESULTS

The feedback is presented in the contexts previously considered: the report and the portfolio.

Feedback in the written report

To help the student respect the agreement

In the different practices studied, the execution of the reports was preceded by the presentation and negotiation of the expected structure and the content of both parts. Thus, the feedback given in the first version of the report has always sought to be mostly related to this aspect, so that the final version comes as close as possible to the teacher's initial expectations.

In general, this kind of feedback has been effective, leading to a better production in the second phase. That's what happened with the report's introduction on a game which the students had to explain. In the first version, the students show some difficulties. But in the second phase, with feedback's action clues like "See what the statement says. Maybe it's easier, it explains it, doesn't it?" they manage to do it, although without fully correction³:

³ The game "all together" consists in a certain number of little balls, were two players, one each time, take one to three little balls. The player that will loose the game is the one that has to take the last little ball.

- O jogo "tudo ao mesmo tempo" consiste num determinado número de bolinhas, em que dois jogadores retiram, alternadamente, entre uma a três bolinhas. Pende o jogador que tiver a última bolinha.

(Semana, 2008, p. 253)

From one report to another the students' appropriation becomes better than it is expected of them. That's shown by Sílvia, the teacher, when referring the third report prepared by her students: "The report's first version of the height of the cone problem follows the script's pre-defined structure, including the introduction and development done in group and the students' individual conclusions" (Semana, 2008, p. 189).

However, structure and content aspects are not always the most valued ones among students who tend to leave its completion for second place, just in case they still have time even when the feedback is quite perceptible to them. That's what happened with a group of 8th grade students, who didn't improve the report's cover, although, it remained unfinished from the first version:

Albertina: We are more concerned with seeking information, so to have time for everything we leave the cover more to the end. Realizing we don't have time, we only put our names, the elements the teacher needs to know and then the title.

Teacher: But you know it's missing. And why do you choose to do that? Is there any specific reason in mathematics, in the mathematics subject, which makes you do this?

Albertina: No, it's just better to miss the cover than to miss information

Teacher: Oh, it's just not so important, right?

Albertina: Yes. (Dias, 2008, p. 142)

Tiago: It's because I think the first time is always ... we have to do it and time seems to be scarce. But when it is done, and it's just a question of improving it, I think it doesn't take so long (...) It's much more important that we learn and search for information than making a cover, that can easily be done. (Dias, 2008, p. 143)

To help the student think about his/her own productions

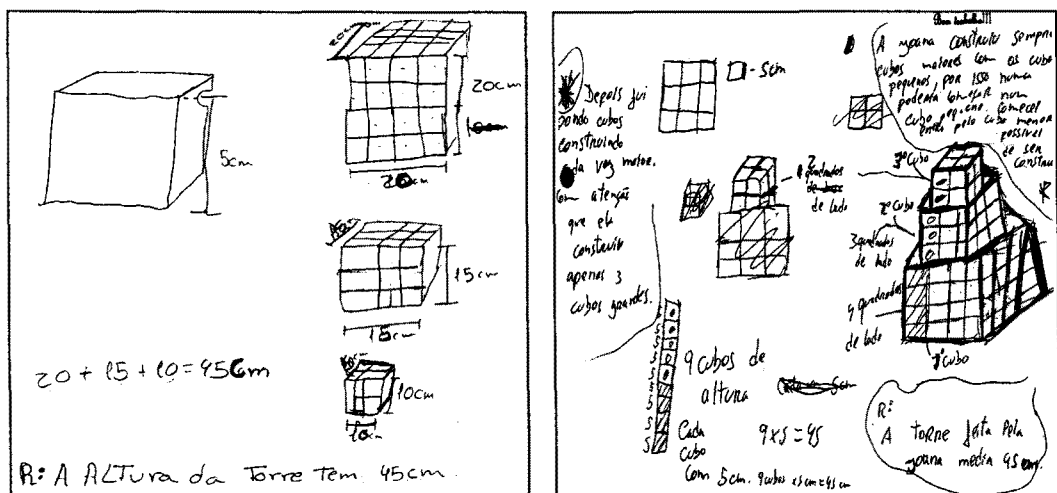
The task's execution is certainly an essential part of the report. The different types of feedback given to the report's first version tried to help students improve both in the

correction of possible errors and in a further development of the tasks. When, for example, teacher Sonia calls on her 7th grade students' attention by writing "Exact value?", so that they write

$$\phi = \frac{1 + \sqrt{5}}{2},$$

the students understand what is required and manage to improve. As they say in the interview "(...) when the teacher wrote that, we searched better in the Internet and saw everybody said the same" (Santos & Dias, 2007).

But the practice of giving feedback alerts us to its complexity. The same feedback is not always appropriate in face of two resolutions that appear to be based on the same kind of reasoning. Such is the case of the first resolution presented by two students on a problem that asked the height of a tower with three cubes of different sizes overlapped, built from a set of small cubes of 5cm which also summed a cube.



Manuel's Resolution

Ricardo's Resolution

Figure 1. First resolution of two students

In both cases the feedback given was the following:

You understood the problem very well and the draft you used is quite clear. However, you forgot a condition! It's just that the box where the 5cm edge cubes were is itself a cube and was full of small cubes.

How many cubes do you use in the tower? Are they enough to form the cube that makes the box?

Carry on exploring. You are on a good track. (Dias, 2008, p. 90)

In spite of using a process of trial and error (by adding and removing 5 cm edge cubes) Manuel kept track of space viewing and was able to obtain the correct solution, whereas Ricardo only answered to the written feedback question of how many cubes were used in the tower. Faced with such situations the teacher concludes “It is clear that my feedback’s meaning is varied which reinforces the idea that it is difficult to practice a feedback suitable with all students and it shows the need to diversify and adjust it to each one” (Dias, 2008, p. 141)

To help the student plan and develop his/her work project

Compared with other assessment tools, the reports give the opportunity to develop the communication skills of those who write them and to identify strengths and weaknesses in order to guide their future learning. The need for justifications, either of the developed processes or the given statements is not always an easy activity for students. Thus, providing a feedback that encourages students to pay attention to this dimension of their work may contribute to develop this capacity as we can see in the following illustrations.

Facing the study of a linear function, in the first version, the questions asked were: “Why? When can we say that a function is linear?” In the second version, the students wrote: “It is a linear function when b has the value of 0 ” (Dias, 2008, p. 144). In another problem, another student states the correct answer without understanding how he obtained it. Once again, the teacher provides feedback that leads out to explanation and justification: “You got the correct answer, but was your 1st attempt? Or did you make other attempts and deleted them? In phase 2 would you then explain why there aren’t any more hypotheses? Thus, your resolution will be perfect” (Dias, 2008, p. 125). The student answered: “This wasn’t my first attempt (...) I think there aren’t any more hypotheses because...” (p. 126) and carries on with his argument.

However, the teacher’s intentionality may not, once again, match the students’ perception of what is important. Such is the case of Duarte, an 8th grade student, who in the first phase work looked at it as hard but well done and who learned that “the Pythagorean Theorem can be done with other figures” adding nothing more to the matter. The following feedback is, then, provided with the intent to lead the student to justify and explain the first version’s statements:

You say the work was hard but well done. What makes you say that? Don’t forget you must justify all your statements.

Also, try to explain better what you mean when you say the Pythagorean Theorem may be done with other figures. (Semana, 2008, p. 174)

In the second phase, Duarte seems to ignore this feedback, as there is no evidence that the student attempts to answer these questions. This seems to be related not so much with

the feedback itself, but rather with the fact that Duarte doesn't consider the report's individual conclusion very important and thus is not very committed to doing much to complete it. As he explains:

I don't think the conclusion is very important. If it was a case of doing the work it would be important, but this, I don't think so (...) I don't worry too much about it. I only do it [the conclusion] because the teacher asked me to. (Semana, 2008, p. 174)

According to teacher Sílvia, in the first stage, the students in general, do not show any concern to present a critical reflection on their group performance, to explain the difficulties they experienced or to identify what they can improve in their work. Therefore, the same written feedback was given to all students, suggesting them to answer the following questions:

- Did I help the group with the work or not? Did I participate and give my opinion or not? How did I do it? Did I hear and respected other people's opinions or not?
- What kind of difficulties did I experience?
- What can I improve?

This feedback obtained different answers. One of the students tried to say how she participated in the group work and what kind of difficulties she experienced, but doesn't develop much those aspects: "In this phase I helped the group much more, I gave and heard other people's opinions. I didn't experience many difficulties but I think I can improve a lot" (Semana, 2008, p. 172). Another student goes deeper in her self-assessment, adding that she helped the group, always sought to give her opinion and to listen to her colleagues and, in the second phase, didn't experience much difficulty. But on the whole, the student's weren't that deep in what concerns difficulties and aspects that need to be improved. This is, therefore, an aspect to be kept in mind to which the mere provision of feedback seems not to be enough.

The portfolio's feedback

To help the student respect the agreement

At least once a month the teacher asks one student at a time to show his/her work and talks about it. Right from the start we can point out that the teacher's request and the conversation that follows contribute heavily to the respect of the agreement. The following conversation allows going far beyond a mere control; it enables the child to explain his/her decision making. This unfolding process amplifies the teacher's knowledge on each student. This mutual knowledge is only possible through a dialogue:

For example, when Antonio said that particular assignment should be included in the

portfolio because it had been “really hard”, Miguel said what really mattered was the fact he had “done it all alone, without any help and it was 100%, it was very good” and Catarina said she chose that assignment because it was done “with Rita, her best friend” (...) referring one of her assignments, Daniela said: “It’s mom. I painted her in colors. And then I drew the feet. And then I drew the arms. And then it was like this: arms, legs, head and hair.” (Bondoso & Santos, 2009, p. 4)

To help the student think about his/her productions or about his/her behavior

Such situations arise particularly when the teacher intends leading the students to share with each other their daily tasks which may be done either individually or in group. For that, the children make a circle to show the others what was accomplished:

- Teacher:** What was your work about?
Daniel: It was on the crocodile.
Catarina: Daniel did the crocodile and Daniel and I coloured it.
Teacher: What kind of materials did you use?
Daniel: We used those egg things to make balls.
Catarina: We used paper to make the teeth and coloured the paper.
Teacher: How did it go?
Daniel: It was alright because we did everything together. (Bondoso & Pinto, 2009, p. 3902)

INTERVIEW'S TRANSCRIPTION		DATE: 12/12/07
TEACHER:	Teresa Bondoso	
CHILDREN:	Beatriz, Ema, Ana, Tatiana and Nair	
Teresa	Why do you think I asked for a meeting?	
Ema	I want to start. Because of the symbolic game	
Teresa	The symbolic game? Explain that.	
Ema	Symbolic game is not making a lot of noise or scattering things.	
Tatiana	Things can't be scattered on the floor.	
Teresa	Only those that are part of the game, at the time.	
Ana	The symbolic game area is not to scatter things...	
Teresa:	I saw something I didn't like. Nair wanted to meet with the other girls and nobody took attention to Nair. Nair?	
Nair:	All the girls want to be aunties but only one can be an auntie.	

(Bondoso & Pinto, 2009, p. 3902)

Figure 2. Dialogue between the teacher and students concerning the portfolio

As we can see in this dialogue there is a whole intentionality in the interaction developed so to make the children think about what they have just done and how they did it and in this particular case on how they coped with each other.

But this intentionality of reflecting upon an action so to understand it is also used in some problematic situations among children so to solve it right on the spot. However, as we can see in the following record, the established interaction is a strong contribution to identify the problem and to, eventually, solve it:

As we can see, the problem is gradually clarified through strategic questions. The children are involved in the dialogue and, by producing it, become aware of what is at stake, of the activity rules, of their behavior and of the problem that generates confusion.

Thus, the oral feedback is a regulatory instrument which mainly allows overcoming small conflicts and is a learning generator, not only at the level of attitudes, but also in what concerns the task and its performing conditions. Here also, through this dialogue, we can see how important feedback is for the construction of a rule sense which certain tasks require in order to be developed.

To help the student plan and develop his/her work project

We understand this category in two different points of view which may vary in their complexity. Firstly we understand it as a reflection about the performed task and an eventual revision; secondly we view it as the development of a work project in which different activities are developed to accomplish a desired purpose.

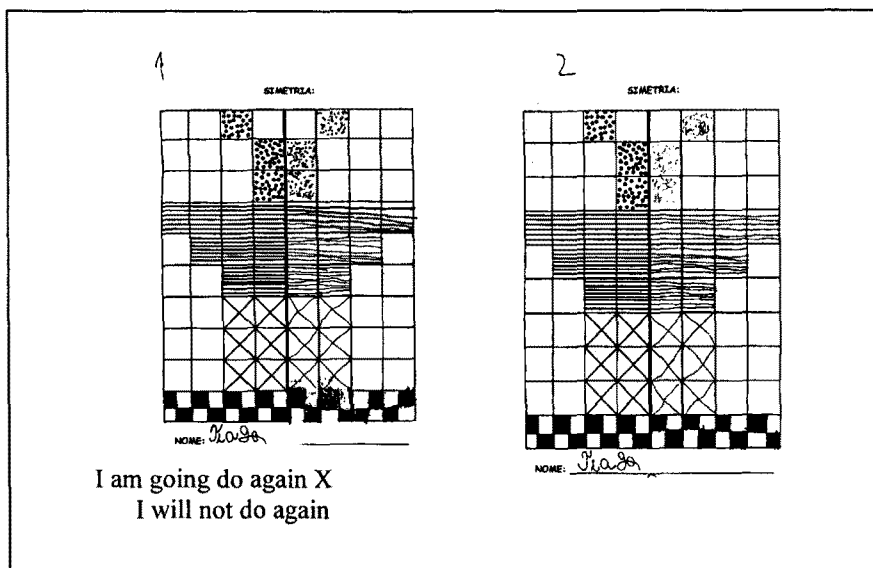


Figure 3. The two versions of the same task

In the first situation, the teacher asks the child to choose a piece of work she has already done and establishes a dialogue according to the following questions: how did you do this work? What do you think is most important? What would you like to do differently?

- Teacher:** How did you do this work?
Tiago: I looked to one side and saw how it was. Then I had to do the same, but on the other side.
Teacher: What do you think is most important?
Tiago: It's just that I never did anything like this before, but Pedro did.
Teacher: What would you like to do differently?
Tiago: The bottom rows, because I got the small squares wrong. (Bondoso & Santos, 2009, p. 6)

This feedback provided by the teacher was extremely focused on the task according to pre-determined aspects. The teacher's feedback helps the child become aware of what he did and how he did it and to identify aspects eventually more or less accomplished. The child's "understanding" about the task helps him not only to decide but also to justify his decision to redo the task or not. Once again we are before a moment of sense construction for what has been done and what will be done next.

This way of using feedback leads us to our second perspective, that is, the use of feedback as a structuring and challenging element in the construction of a work project where tasks will be linked to achieve a goal. But these tasks evolve in complexity and involve different implementation skills.

These feedback situations arise when the activities are, by teacher's choice, an invitation to develop a project. This suggested task is usually placed, as it is shown in the next picture (Figure 4), as a challenge to "agree on something or to be capable of".

As we can see there's a whole dialogue process to bring the child to explain what he would like to do, to think about how he can accomplish his project and what he needs to do in order develop it.

To develop this project, the child drew a machine project "to see hearts", built it and then went to see if the other children liked him or not. Then the teacher challenged him to draw a data record table as we can see in the following figure:

DATA <u>6/11/08</u>	
EDUCADORA <u>Teresa</u>	
CRIANÇA <u>Bruno</u>	
TRANSCRIÇÃO DE ENTREVISTA	
Educadora Criança Eu gostava que tu combinassem alguma coisa para apresentarmos a ser capaz durante o próximo mês, até voltarmos outra vez a fazer o Portfolio. Estás de acordo? Sim. O quê, por exemplo? (pensou durante um tempo) Para mim, é difícil ser o chefe. Porque? Porque as meninos têm de gostar de mim. Tu achas que eles não gostam de ti? Sim (acenando). Olha, e o que é que tu podes fazer para saberes de certeza se os meninos gostam de ti ou não. Tenho que saber dentro do coração deles. E como é que vais fazer isso? Olha, vou fazer uma máquina de ver os corações por dentro. Então, tu és a construí-la esta máquina? Sim. Olha, vai fazer o projecto da máquina. Num papel, registas como vai ser a máquina, como a vais fazer e quais os materiais de que vais precisar. Estar bem.	NOTAS

(Translation of the interview)

Teacher:
 I would like you to agree on something that you can learn to be capable of doing during the next month, until we start doing the portfolio again. Do you agree with me?
 Yes.
 What can you do then? Give me an example.
 (He thought for a while)
 For me, it's difficult to be the leader.
 Why?
 Because the other kids must like me.
 Do you think they don't like you?
 Yes
 (He nodded)
 Look, what do you have to do to be sure that the other children like you or not?
 I have to find that out in their hearts.
 And how are you going to do that?
 Look, get me a machine to see hearts from the inside.
 So, you have to build that machine?
 Yes.
 Now, go do the machine project. Write in a piece of paper what will the machine look like, how you're going to build it and the materials you're going to need.
 All right!

Figure 4. Dialogue between teacher and student concerning the portfolio

The image shows a handwritten table on lined paper. The title at the top is 'TABELA DE GESTAR MUITO'. The table has three main columns: 'NOMES' (Names), 'SIM' (Yes), and 'NAO' (No). There are approximately 20 rows of data. The names listed include 'MAGDALENA', 'MARIA', 'LUCAS', 'JOAO', 'PEDRO', 'ANA', 'MIGUEL', 'CAROLINA', 'DIEGO', 'LARISSA', 'MARIANA', 'GABRIEL', 'THAYANNE', 'MATEUS', 'LUCAS', 'JOAO', 'PEDRO', 'ANA', 'MIGUEL', 'CAROLINA', 'DIEGO', 'LARISSA', 'MARIANA', 'GABRIEL', 'THAYANNE'. The 'SIM' column has checkmarks for most names, and the 'NAO' column has checkmarks for a few names like 'MIGUEL' and 'CAROLINA'.

(Bondoso & Pinto, 2009, p. 3905)

Figure 5. Data record table about the result of the research

And then he finally drew the conclusion of his work.

The image shows the handwritten text 'o Mapa SIM' written on a piece of paper. The word 'Mapa' is written in a larger, more stylized font, and 'SIM' is written below it in a similar style. The letter 'o' is written to the left of 'Mapa'.

(Translation: All children like me. Yes.)
(Bondoso & Pinto, 2009, p. 3905)

Figure 6. Final conclusion of the project

As we can see this kind of dialogue supports the development of action with a challenge that matches the child's wish; it also serves as a "scaffold" of the project's inherent action which enables the child to move from one activity to another, involving different types of skills from plastic to mathematics and writing.

CONCLUSIONS

From these studies under review we may readily state that oral or written feedback, intentionally provided to students of all ages, may be a rich way of learning either to enable the student to get close of the expected product or to identify problems and conflicts and develop their self-assessment capacity including his/her decision making on how to continue the work (Hattie & Timperley, 2007). Thus, the multiple ways of using feedback according to the intent and the action to be developed is a powerful learning context.

The fact that individual work may also be considered a constituent part of a report along with group work and it appeals to a reflective balance may also help the student identify what he needs to improve (Tillema, 1998). Do not think this is a request free of complexity. However, it is in doing so that students may progress and learn how to do it every time better (Black & Wiliam, 1998). Once again, when it considers this dimension, feedback can help the students' development.

The portfolio, as an instrument of interactive assessment between the one who teaches and the one who learns, by allowing the student to be the narrator of his own learning process, is also a very favorable context to feedback use. However, for that to happen, the teacher must assume a clear intentionality, must clarify what she/he wants to achieve and how she/he wants to work with each child.

Nevertheless, the results obtained show that, in spite of respecting the conditions mentioned by several authors, the feedback of a descriptive nature (Gipps, 1999), contextualized by the task and with detailed directions as to how to proceed (Wiliam, 1999) doesn't always have the same positive effects regarding learning. The type of student and his or her perceptions are factors that can influence the effectiveness of this assessment practice. Even for teachers that have experience during some period of time on given feedback to their students, this practice maintains complex and sometimes they can't be able to reach their proposes.

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